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AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF THESE PRESCRIPTIONS */

(Revision 2, including the amendments entered into force on 16 October 1995)

Addendum 101: Regulation No. 102

Date of entry into force: 13 December 1996

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF:
I. A CLOSE-COUPLING DEVICE (CCD)
II. VEHICLES WITH REGARD TO THE FITTING OF AN APPROVED TYPE OF CCD

UNITED NATIONS

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*/ Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

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CONTENTS

Page

REGULATION

1. Scope 5

2. Definitions 5

Section I

3. Application for approval 7

4. Approval 7

5. Specifications 8

6. Modification of CCD type and extension of approval 11

7. Conformity of production 11

8. Penalties for non-conformity of production 12

9. Production definitely discontinued 13

10. Names and addresses of technical services responsible for conducting approval tests and of administrative departments 13

Section II

11. Application for approval 14

12. Approval 14

13. Requirements concerning the fitting of an approved CCD 16

14. Modifications of the vehicle type and extension of approval 17

15. Conformity of production 17

16. Penalties for non-conformity of production 18

17. Production definitely discontinued 18

18. Names and addresses of technical services responsible for conducting approval tests and of administrative departments 19

CONTENTS (continued)

Page

ANNEXES

Annex 1 - Communication (Section I) 20

Annex 2 - Communication (Section II) 22

Annex 3 - Example of the approval mark 24

Annex 4 - Requirements concerning tests and performance 25

1. SCOPE

1.1. This Regulation applies to vehicles of categories N2, N3, O3 and O4.

2. DEFINITIONS

2.1. For the purposes of this Regulation:

2.1.1. "Close-coupling device (CCD)" means a device which automatically provides sufficient space between the bodies of towing vehicles and trailers if additional clearance is needed during angular movement between them. Coupling devices having no adjusting effect on lengths and/or angles within the device are not covered by this Regulation;

2.1.2. "Approval of a device" means the approval of a type of close-coupling device conforming to the requirements set out in Section I below;

2.1.3. "Approval of a vehicle" means the approval of a vehicle with regard to the fitting of an approved close-coupling device;

2.1.4. "Vehicle type" means vehicles which do not differ in such essential respects as:

2.1.4.1. The make and type of the close-coupling device;

2.1.4.2. The length and width of the vehicles;

2.1.4.3. The mass of the vehicles;

2.1.4.4. The points of attachment of the close-coupling device;

2.1.4.5. The vehicle description (e.g. truck, tractor, trailer, semi-trailer, centre-axle trailer);

2.1.4.6. Steering equipment (e.g. auxiliary steering equipment, steering equipment of the trailer).

2.1.5. "Type of close-coupling device" means devices which do not differ in such essential respects as:

2.1.5.1. The make and type of the device;

2.1.5.2. The operating principle;

2.1.5.3. The means of attachment to vehicles;

2.1.5.4. The overall dimensions at minimum and maximum extension;

2.1.5.5. The limits of the operating angles;

2.1.5.6. The kinematic characteristics in relation to the angles of articulation;

2.1.6. "Automatic coupling procedure"
A coupling procedure is automatic if reversing the towing vehicle against the trailer is sufficient to engage the coupling completely and properly and to secure it automatically and to indicate proper engagement of the safety devices without any external intervention.

SECTION I

APPROVAL OF A CLOSE-COUPLING DEVICE (CCD)

3. APPLICATION FOR APPROVAL

3.1. The application for approval of a close-coupling device (CCD) shall be submitted by the manufacturer of the CCD or by his duly accredited representative.

3.2. It shall be accompanied by:

3.2.1. In triplicate, a detailed description and fully dimensioned scale drawings of the CCD and the method of installation. The submitted documents must show to the satisfaction of the competent authority that the CCD will function reliably and safely.

3.2.2. A sample of the CCD type to be approved;

3.2.3. A combination of vehicles representing the worst case condition, fitted with the CCD to be approved, shall be selected in conjunction with the technical service responsible for conducting the approval tests taking into account such aspects as suspension, maximum allowable mass and dimensions, wheelbase, number and position of axles and the extreme positions of the close-coupling device. More than one combination of vehicles shall be provided, if required by the technical service.

3.3. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

4. APPROVAL

4.1. All parts required for the installation and safe operation of a close-coupling device (e.g. parts subject to towing and/or steering forces fixed to the chassis of the towing vehicle or the trailer, and control systems) are subject to type approval.

4.2. If the CCD submitted for approval pursuant to this Regulation meets the requirements of paragraph 5 below, approval of that CCD type shall be granted.

4.3. An approval number shall be assigned to each type approved. Its first two digits (00 for the Regulation in its present form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another type of CCD.

4.4. Notice of approval or of extension or refusal of approval of a CCD type pursuant to this Regulation shall be communicated to the Contracting Parties applying this Regulation, by means of a form conforming to the model in annex 1 to this Regulation.

4.5. There shall be securely affixed to every CCD conforming to a vehicle type approved under this Regulation, conspicuously and in a readily accessible place specified on the approval form, an international approval mark consisting of:

4.5.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 1/

4.5.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 4.5.1.

4.6. The approval mark shall be clearly legible and shall be indelible.

4.7. Annex 3 to this Regulation gives examples of arrangements of approval marks.

5. SPECIFICATIONS

5.1. General

5.1.1. The CCD shall be so designed, constructed and assembled such that a vehicle fitted with the CCD conforms to the requirements of this Regulation under normal conditions of road use. The coupling devices themselves must comply with the technical requirements of Regulation No. 55. Additional forces which may be caused by the assembled CCD in operation shall be taken into account.

5.1.2. The operation of the CCD shall be automatic. Even the reverse movement of the close-coupled combination must be possible without any manual action at the CCD.

1/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 (vacant), 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30-36 (vacant) and 37 for Turkey. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

5.1.3. 2/ In particular, the CCD shall be so designed, constructed and assembled so as to be resistant to all stresses, corrosion and ageing to which it may be subjected (e.g. vibration, humidity, extreme temperatures).

5.1.4. The CCD shall enable vehicles to travel in a straight line on a level road, without any abnormal effort being applied to the steering control, either forwards or in reverse.

5.1.5. System failures

5.1.5.1. Any power system failure and/or control system failure of the CCD, while the vehicle is running, shall cause the coupling to extend and remain in that position. Separation of the towing vehicle and trailer must be prevented by mechanical means under all conditions of use.

5.1.5.2. Any power system and/or control system failure must be indicated to the driver by an acoustic and an optical signal.

5.1.6. When the vehicles are stationary no uncontrolled movement of the CCD may occur under any circumstances including long term uphill parking.

5.1.7. Non-automatic movement of the CCD may be possible only while the towing vehicle is stationary. An instruction to apply the parking brake of the towing vehicle shall be permanently attached to the control unit.

5.1.7.1. This operation shall be controlled by means of a dual control unit.

5.1.7.2. This control unit must be fitted outside the driver's cabin and shall be situated in such a position that the operator is not endangered by the movement of the trailer and can see the danger area between the vehicles at a glance.

5.1.7.3. It must not be possible to lock the control unit in the operating position or operate it unintentionally.

5.1.7.4. The movement of the trailer shall take place without jolting, at a speed of not more than 50 mm/sec.

5.1.7.5. Release of a control must stop the movement immediately.

5.1.8. Forward movement of the towing vehicle shall not result in rearward movement of the trailer in relation to the road surface. Rearward movement of the trailer of not more than 30 mm is permitted only for switch and react purposes.

2/ Until uniform test procedures have been agreed, the manufacturers shall provide the Technical Services with their test procedures and results.

5.1.9. The CCD must return to its shortest normal straight ahead operating position following relative angular movement between towing vehicle and trailer, in accordance with annex 4.

5.1.10. Operation of the CCD shall not interfere with the dynamic stability of the combination. This requirement shall be checked during the tests described in annex 4.

5.1.11. The CCD shall be designed so as to enable the vehicles to be coupled or uncoupled. All coupling operations shall be automatic, including the mechanical controls and the parts subject to towing and/or steering forces. Correct engagement of the positive locking system must be indicated or be easily visible from the side of the vehicle alongside the coupling device. Otherwise, a remote indication must be installed in the driver's cabin. Manual coupling of control and power supply lines is permitted provided the connections are readily accessible from a standing position and the combination can be safely driven, without these lines being connected.

5.1.12. The CCD when engaged must itself provide at least the following angular movement:

	Full trailer	Centre axle trailer	Semi-trailer
horizontal	± 60°	± 90°	± 90°
vertical	± 20°	± 15°	± 12°
axial	± 15°	± 15°	—

5.1.13. For hydraulic or pneumatic CCD's, an optical signal shall indicate that the CCD is about to reach its maximum extension. This signal may be the same as the optical signal mentioned in paragraph 5.1.5.2.

5.1.14. The CCD shall be designed such that when coupling at an angle between the towing vehicle and trailer different from that when uncoupled, unintentional movement of the trailer or incorrect functioning of the CCD does not occur.

5.1.15. A plate specifying the maximum mass of the towing vehicle and the trailer, all lubrication points and the frequency of lubrication shall be affixed such that it is clearly visible even when the trailer is coupled.

5.2. Tests

The tests which the CCD shall undergo for approval are described in annex 4 to this Regulation.

6. MODIFICATION OF CCD TYPE AND EXTENSION OF APPROVAL

6.1. Any modification of the CCD type shall be notified to the administrative department which approved the CCD type. The department may then either;

6.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that the device still complies with the requirements; or

6.1.2. Require a further test report from the technical service responsible for conducting the tests.

6.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 4.3. above to the Contracting Parties applying this Regulation.

6.3. The competent authority issuing an extension of approval shall assign a series number for such an extension and inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

7. CONFORMITY OF PRODUCTION

7.1. Every CCD approved under this Regulation shall be manufactured so as to conform to the type approved by meeting the requirements set out in paragraph 5 above.

7.2. In order to verify that the requirements of paragraph 7.1. are met, suitable controls of the production shall be carried out.

7.3. The holder of the approval shall, in particular:

7.3.1. ensure the existence of procedures for effective control of the quality of products;

7.3.2. have access to the control equipment necessary for checking the conformity to each approved type;

7.3.3. ensure that data of the test results are recorded and that related documents shall remain available for a period to be determined in accordance with the administrative service;

7.3.4. analyze the results of each type of test, in order to verify and ensure the stability of the product characteristics, making allowance for variation in industrial production;

7.3.5. ensure that, for each type of product, a sufficient number of checks and tests are carried out, in conformity with the procedures approved by the competent authority;

7.3.6. ensure that any collecting of samples or parts giving evidence of non-conformity in the type of test in question shall give rise to another sampling and another test. All the necessary steps shall be taken to re-establish the conformity of the corresponding production.

7.4. The competent authority which has granted type approval may at any time verify the conformity control methods applicable to each production unit.

7.4.1. In every inspection, the test books and production survey records shall be presented to the visiting inspector.

7.4.2. The inspector may take samples at random to be tested in the manufacturer's laboratory. The minimum number of samples may be determined in the light of the results of the manufacturer's own checks.

7.4.3. Where the quality level appears unsatisfactory or when it seems necessary to verify the validity of the tests carried out in application of paragraph 7.4.2. above, the inspector shall select samples, to be sent to the technical service which has conducted the type approval tests.

7.4.4. The competent authority may carry out any test prescribed in this Regulation.

7.4.5. The normal frequency of inspections authorized by the competent authority shall be once every two years. In the case where negative results are recorded during one of these visits, the competent authority shall ensure that all necessary steps are taken to re-establish the conformity of production as rapidly as possible.

8. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

8.1. The approval granted in respect of a CCD type, pursuant to this Regulation, may be withdrawn if the requirements laid down in paragraph 5 above are not complied with.

8.2. If a Contracting Party to the 1958 Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Parties to the Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

9. PRODUCTION DEFINITELY DISCONTINUED

9.1. If the holder of the approval completely ceases to manufacture a type of CCD approved in accordance with this Regulation, he shall so inform the authority which granted the approval, which shall in turn inform the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

10. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

10.1. The Parties to the Agreement applying this Regulation shall communicate to the United Nations secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or extension, or refusal or withdrawal of approval or production definitely discontinued, issued in other countries, are to be sent.

SECTION II

APPROVAL OF VEHICLES WITH REGARD TO THE FITTING OF AN APPROVED TYPE OF CCD

11. APPLICATION FOR APPROVAL

11.1. The application for approval of a vehicle type with regard to the fitting of a CCD of an approved type shall be submitted by the vehicle manufacturer or by his duly accredited representative.

11.2. It shall be accompanied by the undermentioned documents in triplicate and the following particulars:

11.3. A detailed description of the vehicle type and the vehicle parts connected to the CCD, including a dimensioned drawing of the fixing points and the information and documents referred to in annex 2.

11.4. At the request of the competent authority, the approval form (i.e. the form indicated in annex 1 to this Regulation) for each type of CCD shall also be supplied.

11.5. A vehicle, representative of the vehicle type to be approved, fitted with a CCD, shall be submitted to the technical service conducting the approval test.

11.5.1. A vehicle not having all the components appropriate to the type may be accepted provided that the applicant can show to the satisfaction of the competent authority that the absence of the components omitted has no effect on the results of the inspections as far as the requirements of this Regulation are concerned.

11.6. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

11.7. Special operating instructions shall be provided for coupling operations deviating from usual ones, which must contain in particular, instructions regarding coupling and uncoupling with different modes of operation (e.g. angled positions). Each vehicle must be accompanied by such special operating instructions.

12. APPROVAL

12.1. If the vehicle submitted for approval pursuant to this Regulation is fitted with an approved CCD and meets the requirements of paragraph 13 below, approval of that vehicle type shall be granted.

12.2. An approval number shall be assigned to each type approved. The first two digits (00 for the Regulation in its present form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another vehicle type.

12.3. Notice of approval or of extension or of refusal of approval of a vehicle type pursuant to this Regulation shall be communicated to the Contracting Parties applying this Regulation by means of a form conforming to the model in annex 2 to this Regulation.

12.4. There shall be affixed to every vehicle conforming to a vehicle type approved under this Regulation, conspicuously and in a readily accessible place specified on the approval form, an international approval mark consisting of:

12.4.1. A circle surrounding the letter "E", followed by the distinguishing number of the country which has granted approval; 3/

12.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number, to the right of the circle prescribed in paragraph 12.4.1.

12.5. If the vehicle conforms to a vehicle type approved, under one or more of the Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 12.4.1. need not be repeated; in this case the Regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 12.4.1.

12.6. The approval mark shall be clearly legible and shall be indelible.

3/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 (vacant), 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30-36 (vacant) and 37 for Turkey. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

12.7. The approval mark shall be placed close to or on the vehicle data plate affixed by the manufacturer.

12.8. Annex 3 to this Regulation gives examples of arrangements of approval marks.

13. REQUIREMENTS CONCERNING THE FITTING OF AN APPROVED CCD

13.1. The requirements of Section I, paragraph 5.1., excluding paragraph 5.1.12. have to be fulfilled when the CCD is fitted to the vehicle, despite any influences which may be caused by the operation of the vehicle.

13.2. The CCD in use shall not impede the movement of the vehicles to which it is fitted. This condition shall be deemed to have been met if the test requirements described in annex 4 are complied with.

13.3. Warning signal as mentioned in Section I, paragraphs 5.1.5.2. and 5.1.13.

13.3.1. The acoustic device must be located in the driver's cabin and must be easily audible by the driver under all circumstances, when the vehicle is in normal use.

13.3.2. The optical signal shall be red in colour and located on the instrument panel in the direct field of vision of the driver and must be easily visible even in daylight.

13.4. Coupling and uncoupling must be possible with coupling angles of up to 50° horizontally both to the right and left, up to 10° vertically both upward and downward with full trailers, up to 6° vertically both upward and downward with centre axle trailers and up to 7° when twisted axially in both directions, i.e., it must be possible to couple the trailer up to the above-mentioned angular positions between towing vehicle and trailer drawbars without the necessity of intervention of additional personnel.

During automatic coupling it is permitted for a temporary position to be arranged before final coupling is effected. The temporary position must permit the combination to be safely manoeuvred. If the final action is operated manually the space between the vehicles must be at least 500 mm.

13.5. It must be possible from the standing position for one person to position the coupling devices prior to the coupling procedure without the use of tools. This requirement also applies to the connection and disconnection of the braking and electrical lines.

13.6. General requirements
To allow automatic coupling, the drawbar eye must be adjustable vertically to the centre height of the coupling device under all usual traffic and operational conditions.

14. MODIFICATIONS OF THE VEHICLE TYPE AND EXTENSION OF APPROVAL

14.1. Any modification of the vehicle type as defined in paragraph 2.1.4. shall be notified to the administrative department which approved the vehicle type. The department may then either:

14.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the vehicle still conforms to the requirements, or

14.1.2. Require a further test report from the technical service.

14.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure prescribed in paragraph 12.3. above to the Contracting Parties applying this Regulation.

14.3. The competent authority issuing an extension of approval shall assign a series number for such an extension and inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 2 to this Regulation.

15. CONFORMITY OF PRODUCTION

15.1. Every vehicle approved under this Regulation shall be manufactured so as to conform to the type approved by meeting the requirements set out in paragraph 13 above.

15.2. In order to verify that the requirements of paragraph 15.1. are met, suitable controls of the production shall be carried out.

15.3. The holder of the approval shall, in particular:

15.3.1. ensure the existence of procedures for effective control of the quality of vehicles in respect of all aspects relating to conformity with the requirements set out in paragraph 13 above;

15.3.2. have access to the control equipment necessary for checking the conformity to each approved type;

15.3.3. ensure that data of the test results are recorded and that related documents shall remain available for a period to be determined in accordance with the administrative service;

15.3.4. analyze the results of each type of test, in order to verify and ensure the stability of the product characteristics, making allowance for variation of an industrial production;

15.3.5. ensure that, for each type of product, a sufficient number of checks and tests are carried out, in conformity with the procedures approved by the competent authority;

15.3.6. ensure that any collecting of samples or parts giving evidence of non-conformity in the type of test in question shall give rise to another sampling and another test. All the necessary steps shall be taken to re-establish the conformity of the corresponding production.

15.4. The competent authority which has granted type approval may at any time verify the conformity control methods applicable to each production unit.

15.4.1. In every inspection, the test books and production survey records shall be presented to the visiting inspector.

15.4.2. The inspector may take samples at random to be tested in the manufacturer's laboratory. The minimum number of samples may be determined in the light of the results of the manufacturer's own checks.

15.4.3. Where the quality level appears unsatisfactory or when it seems necessary to verify the validity of the tests carried out in application of paragraph 15.4.2. above, the inspector shall select samples, to be sent to the technical service which has conducted the type approval tests.

15.4.4. The competent authority may carry out any test prescribed in this Regulation.

15.4.5. The normal frequency of inspections authorized by the competent authority shall be once every two years. In the case where negative results are recorded during one of these visits, the competent authority shall ensure that all necessary steps are taken to reestablish the conformity of production as rapidly as possible.

16. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

16.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements set out in paragraph 13 above are not complied with.

16.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Parties to the Agreement applying this Regulation, by means of a communication form conforming to the model in annex 2 to this Regulation.

17. PRODUCTION DEFINITELY DISCONTINUED

17.1. If the holder of the approval completely ceases to manufacture a type of vehicle approved in accordance with this Regulation, he shall so inform the authority which granted the approval, which shall in turn notify the other Parties to the 1958 Agreement

applying this Regulation by means of a communication form conforming to the model in annex 2 to this Regulation.

18. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

18.1. The Parties to the Agreement applying this Regulation shall communicate to the United Nations secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or extension, or refusal or withdrawal of approval, or of production definitely discontinued, issued in other countries, are to be sent.

Annex 1

COMMUNICATION

(maximum format: A4 (210 x 297 mm))

issued by: Name of administration:
.....
.....
.....

concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a CCD pursuant to Regulation No. 102, Section I

Approval No.: ..... Extension No.: .....

1. Trade name or mark of the CCD: .....

2. CCD type .....

3. Manufacturer's name and address: .....

4. If applicable, name and address of manufacturer's representative: .....

5. Brief description of the CCD: .....

6. Type .....

6.1. Vehicle on which the CCD was tested: .....

6.2. Brief description including information with regards to paragraph 3.2.3. .....

7. Minimum space between motor vehicle and towed vehicle: .....

8. Maximum extension of device: .....

9. Restrictions of use on vehicles which may be utilized 2/:
(e.g. truck, tractor, trailer, semi-trailer, centre axle trailer).
Maximum permissible mass of the trailer: . . . . . .
Maximum permissible mass of the tractor: . . . . . .

10. CCD submitted for approval on: . . . . . .

11. Technical service responsible for conducting approval tests: . . . . .

12. Date of test report issued by that service: . . . . . .

13. Number of test report issued by that service: . . . . . .

14. Approval of the CCD granted/refused/extended/withdrawn 2/: . . . . . .

15. Position of approval mark on the CCD: . . . . . .

16. Place: . . . . . .

17. Date: . . . . . .

18. Signature: . . . . . .

19. A list of documents in the approval file deposited with the administrative service which has granted approval is annexed to this communication and may be obtained on request.

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply.

Annex 2

COMMUNICATION

(maximum format: A4 (210 x 297 mm))

issued by: Name of administration:
.....
.....
.....

concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to the fitting of a CCD approved under Section II of Regulation No. 102

Approval No.: ..... Extension No.: .....

1. Trade name or mark of vehicle: .....

2. Vehicle type: .....

3. Manufacturer's name and address: .....

4. If applicable, name and address of manufacturer's representative: .....

5. Vehicle category N2, N3, O3, O4 2/: .....

6. Brief description of the vehicle type in respect of the CCD (e.g. truck, tractor, trailer, semi-trailer, centre-axle trailer): .....
Maximum permissible mass of the trailer: .....
Maximum permissible mass of the tractor: .....

7. Trade name or mark of the CCD(s) and its/their approval No(s): .....

8. Minimum space between towing vehicle and towed vehicle: .....

9. Maximum length of vehicles with the CCD(s) in running position: .....

10. Restriction on vehicles to be coupled to the vehicle type: . . . . .

11. Vehicle submitted for approval on: . . . . . .

12. Technical service responsible for conducting approval tests: . . . . .

13. Date of test report issued by that service: . . . . . .

14. Number of test reports issued by that service: . . . . . .

15. Approval granted/refused/extended/withdrawn 2/: . . . . . .

16. Position of approval mark on the vehicle: . . . . . .

17. Place: . . . . . .

18. Date: . . . . . .

19. Signature: . . . . . .

20. The list of documents in the approval file deposited with the administrative service which has granted approval is annexed to this communication and may be obtained on request.

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply.

Annex 3

EXAMPLES OF THE APPROVAL MARK

a = 8 mm min

The above approval mark, affixed to a CCD, shows that the CCD concerned has been approved in the Netherlands (E4), pursuant to Regulation No. 102, with the approval No. 002439. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 102 in its original form.

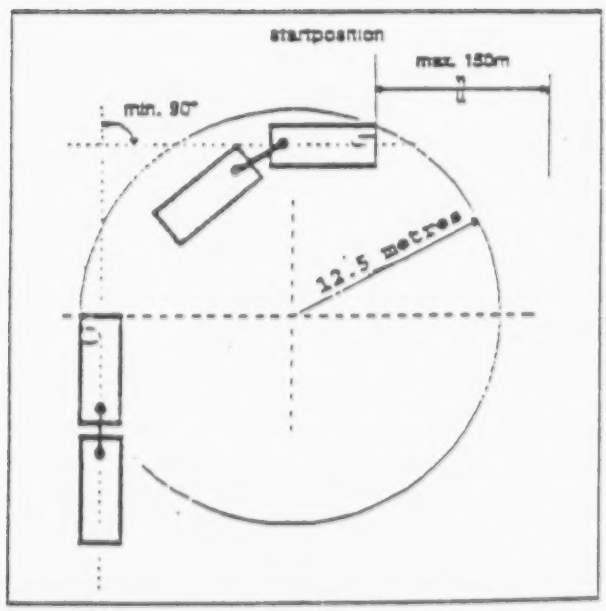
Annex 4

REQUIREMENTS CONCERNING TESTS AND PERFORMANCE 1/
(See paragraph 5.1.10.)

1. CCD RECOVERY DISTANCE

1.1. The towing vehicle/trailer combination shall be driven, from a straight ahead position, around a bend having an outside radius of 12.5 metres and stopped when the towing vehicle has turned through an angle of 90° (yaw-angle). The combination shall then be accelerated as quickly as possible up to a speed of 30 ± 2 km/h and be maintained at this speed until completion of the test. Full retraction of the CCD must have taken place within 150 metres from the acceleration start position (see Figure 1 below).
This test shall be conducted in both left and right directions.

Figure 1



Note: Compliance with these requirements does not guarantee that the overall length of the vehicle combination is legal in all driving conditions.

1/ For the purposes of approvals under Section II, the technical service may take into account tests conducted for the purposes of Section I.

1.2. The technical service shall verify that some retraction of the CCD takes place all the time the towing vehicle is moving forward.

2. STABILITY OF THE COMBINATION
For the approvals under Sections I and II, the stability performance shall be measured during road tests conducted in the following conditions:

2.1. TEST CONDITIONS

2.1.1. Loading conditions

2.1.1.1. The vehicles must be laden, the distribution of mass among the axles being that stated by the manufacturers of the vehicles; where provision is made for several arrangements of the load on the axles, the distribution of the maximum mass among the axles must be such that the mass on each axle is proportional to the maximum permissible mass for each axle.

2.1.1.2. The height of the centre of gravity of the vehicles shall be at least 1.7 metres.
The actual loading condition shall be specified in the test report. For vehicles designed for use with a centre of gravity lower than 1.7 metres, the test may, at the discretion of the approval authority, be conducted at the lower figure.
In this case the maximum centre of gravity height shall be stated on the information plate required by paragraph 5.1.1.5.

2.1.2. The test must be carried out at the speeds prescribed for each type of test.
If the maximum design speed of a vehicle is lower than the speed prescribed for a test, the test shall be performed at the vehicle's maximum speed.

2.1.3. The road must be level and must have a surface affording good adhesion;

2.1.4. The tests must be performed when there is no wind liable to affect the results;

2.1.5. At the start of the tests, the tyres must be cold and at the pressure prescribed by the manufacturer of the vehicles or tyres for the load actually borne by the wheels when the vehicles are stationary; substantially new tyres shall be used.

2.1.6. The prescribed performance must be obtained without self amplifying reactions, without deviation of the vehicles from their course, and without unusual vibration in the steering and coupling system.

2.2. STRAIGHT LINE STABILITY TEST

2.2.1. Vehicles shall be tested at a speed of 85 $^{+5/-0}$ km/h and remain aligned. During the test, it must be possible to travel along a straight section of the road without unusual steering correction by the driver.

2.2.2. 2/ An emergency straight line braking test from a speed of 60 km/h to rest at a mean fully developed deceleration of at least 4 m/s^2 shall not cause the combination to deviate outside a lane 3.5 metres wide.

2.2.3. Starting from rest, a forward acceleration of at least 2 m/s^2 shall not cause any movement between the vehicles of a degree likely to cause the driver difficulty in controlling the vehicle combination. (If the acceleration prescribed for this test cannot be reached by a vehicle combination, the test shall be performed with the maximum acceleration available).

2.2.4. No permanent deformation shall take place during the above tests.

2.3. CHANGE OF LANE

2.3.1. A simulated overtaking manoeuvre, as defined in the appendix, conducted at a progressively increasing speed up to 80 km/h, shall not cause the driver any difficulty in controlling the combination.

2.3.2. At a speed of 20 km/h steering from one side of the track to the other alternately at least 3 times by turning the steering wheel as fast and as far as possible, no contact between the vehicles or damage to the CCD shall occur (track width is 10 metres).

3. CIRCULAR MOVEMENT

3.1. Starting from rest and a straight ahead position, the combination shall be driven around a curve of 25 m radius to a speed of 20 km/h at an acceleration of 2 ± 10% m/s^2. This shall not cause any movement between the vehicles of a degree likely to cause the driver difficulty in controlling the vehicle combination.

3.2. With the towing vehicle and trailer having adopted a steady state, turn so that the front outside edge of the towing vehicle describes a circle of radius of 25 m, at a constant speed of 5 km/h. The circle described by the rearmost outer edge of the trailer shall be measured. This manoeuvre shall be repeated under the same conditions but at a speed of 25 km/h ± 1 km/h.

2/ The technical service shall take account of the predominance setting of the combination.

During these manoeuvres, the rearmost outer edge of the trailer, travelling at a speed of 25 km/h ± 1 km/h, shall not move outside the circle described during the manoeuvre at a constant speed of 5 km/h by more than 0.70 m (see Figure 2 below).

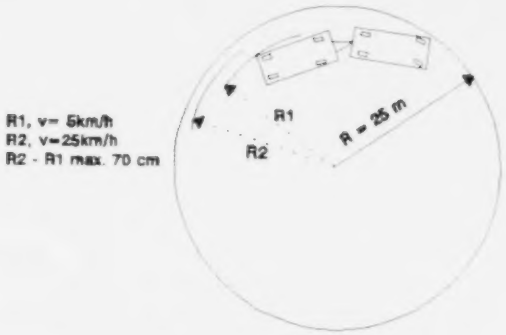


Figure 2

3.3. No part of the trailer must move more than 0.5 m beyond the tangent to a circle with a radius of 25 m when towed by a vehicle leaving the circular path along the tangent while maintaining the speed of 25 km/h. This requirement must be met from the point the tangent meets the circle to a point 40 m along the tangent. After that point the trailer must travel without excessive deviation or unusual vibration in its steering equipment (see Figure 3 below).

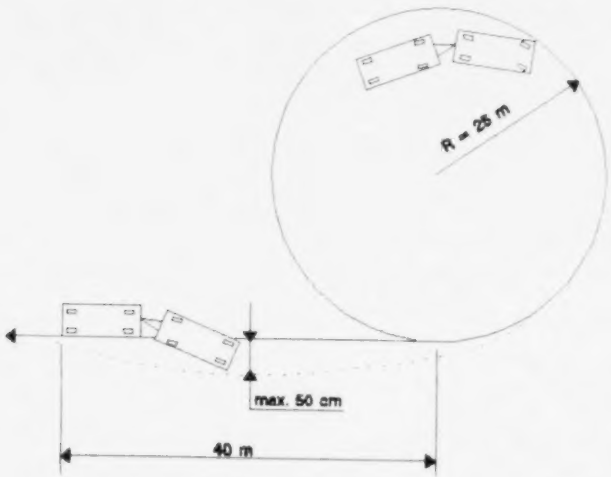
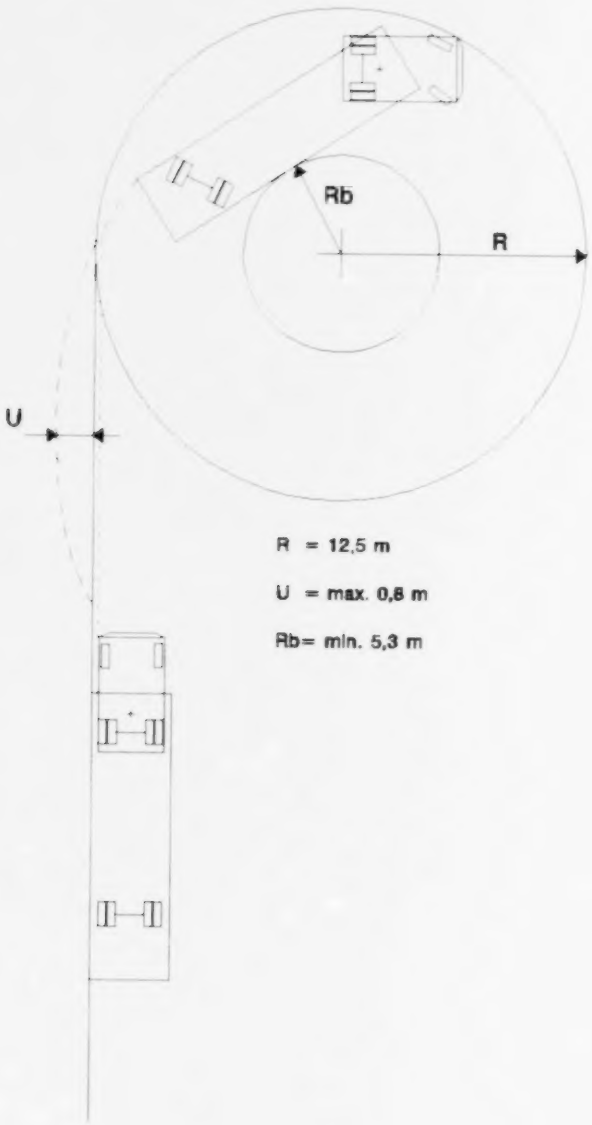


Figure 3

3.4. Any motor vehicle or combined vehicle which is in motion must be able to turn within a swept circle having an outer radius of 12.50 m and an inner radius of 5.30 m. The test shall be conducted in both left and right directions. No part of the combination, where it penetrates the circle from a tangent, may overlap that tangent by more than 0.8 m beyond the point of intersection (see Figure 4 below).

Figure 4



4. SLOPES

4.1. When positioned longitudinally in line and in the normal operation position:

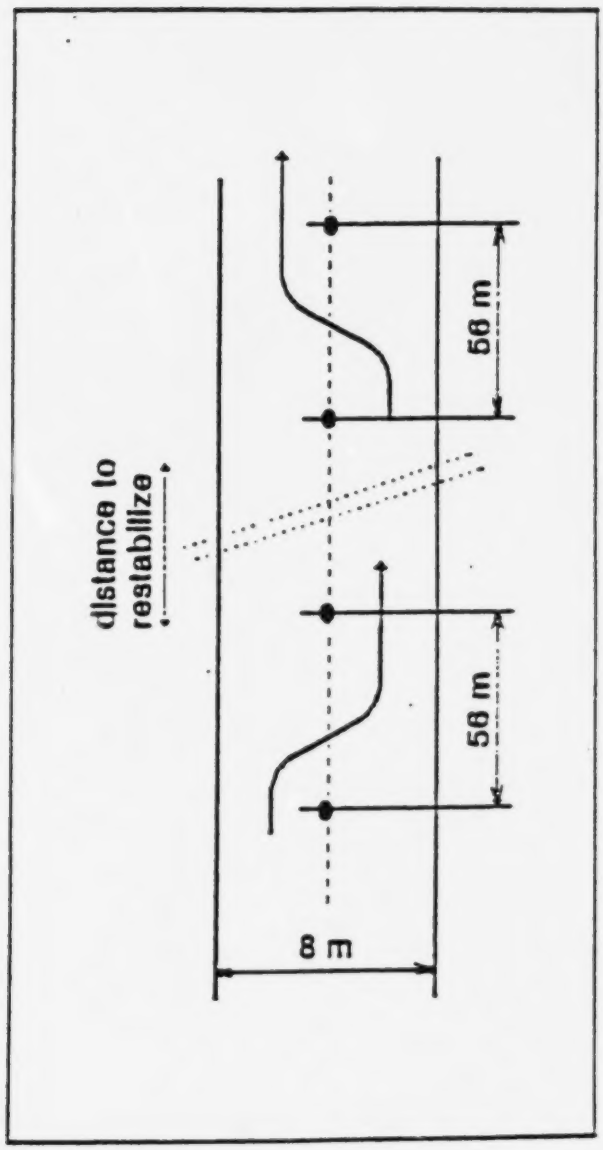
4.1.1. There shall be no unintentional contact between any part of the towing device and the towing vehicle or trailer when the vehicles are positioned at a relative vertical angle of 6°.

4.1.2. No contact shall occur between the bodies of the towing vehicle and trailer at a relative vertical angle of 5°.

4.2. The requirements of paragraphs 4.1.1. and 4.1.2. may be verified by calculation at the discretion of the technical service.

Annex 4 - Appendix

OVERTAKING TRACK
(See paragraph 2.3.1.)



Note: This track arrangement may be subject to revision when superseded by an ISO Standard.